

hyosternals and hyposternals are primitively long, slender, transverse bars, which join the vertebral ribs in the Tortoises and Terrapenes, without the intervention of any marginal pieces. The ossification of the superadded dermal portions proceeds from the previously ossified endo-skeletal elements.

The author concurs with M. Rathke in regarding the marginal pieces as 'dermal bones,' and concludes by a full discussion of the facts and arguments which have led him to a different conclusion respecting the nature and homologies of the carapace and plastron.

The memoir is illustrated by figures of the carapace and plastron, and of the corresponding segments of the skeleton in the bird and crocodile, and of the development of the thoracic-abdominal case in land- and sea-chelonians.

BOTANICAL SOCIETY OF EDINBURGH.

March 8, 1849.—Professor Balfour, President, in the Chair.

The following communications were read:—

1. "On the mode of Growth in *Calothrix* and the allied genera," by John Ralfs, Esq. (See p. 348 of the present number.)
2. "On the Cone-like Bodies produced by *Epilobium palustre*," by James Hardy, Esq.

This paper describes the fleshy buds or hybernacula formed at the ends of the scions of some species of *Epilobium*, and which constitute a mode of propagation for those plants independently of the seed. The author notices more especially those of *E. palustre*, which he describes as resembling minute larch-cones, and formed of smooth, fleshy, orbicular reniform or cordate scales. The basal pair is small, the following ones suddenly enlarged, the apical ones small. They are imbricated in pairs alternately. In the autumn their connection with the parent plant is dissolved, and they lie loose on the spongy soil until the spring, when they produce roots and form new and distinct plants.

3. "On Varieties of some common Plants," by James Hardy, Esq.

The author describes a state of *Scabiosa succisa* with the involucre small, the heads loose and few-flowered, the external segment of the corolla much lengthened, stigma and stamens short. Found in Penmanshiel Wood, Berwickshire. He next notices two forms of *Leontodon Taraxacum* [*Taraxacum officinale*] founded chiefly on the forms of the leaves, characters quite unworthy of confidence in that genus. Of *Rumex crispus* he remarks that each of the petals bears a tubercle when the plant grows near the sea, and only one of them when inland. [This seems to be a generalization from insufficient data.] A variety of *Sonchus oleraceus* is founded on the presence of glands on the involucre, flower-stalks very downy when young, leaves lyrate-pinnatifid and usually destitute of spines. It is "maritime and is rarely found beyond the influence of the sea." [We have before us several specimens of *S. oleraceus* to which these characters will more or less apply, but only one of them is maritime. Gaudin is the only author with which we are acquainted who notices a plant (his β . *glan-*

dulosus) having "caule summo pedunculisque glanduloso-hispidis," which we believe to be the plant before us and that found by Mr. Hardy. Of the above characters the gland-tipped hairs are alone of any value. To have down at the base of the involucre is probably a frequent condition of *S. oleraceus*, not of *S. asper*. The form of the leaves is too inconstant to be of any value.]

4. Dr. Balfour described a specimen of *Stiffia chrysantha*, one of the arborescent Compositæ of South America, which had recently flowered in the Edinburgh Botanical Garden. Also a specimen of *Quassia amara*, which had shown flowering racemes. The leaves of the latter presented remarkable transitions from a simple to a pinnate leaf, with a winged petiole. Notices of these will appear in the 'Edinburgh New Philosophical Journal.'

April 12.—Professor Balfour, President, in the Chair.

The following communications were read:—

1. "Algæ Orientales" (part 8), by Dr. Greville. In this communication Dr. Greville described *Sargassum gracile*, *S. leptophyllum*, and *S. flexile*. This paper will appear in the 'Annals of Natural History' and in the Society's Transactions.

2. "On the Irritability of the Style of various species of *Goldfussia*," by J. S. Sanderson, Esq. In this paper Mr. Sanderson entered into a detailed statement of the structure of the style of *Goldfussia*, and endeavoured to show that the explanation given by Morren of the cause of the movements is not satisfactory.

The style of *Goldfussia* curves outwards, the stigmatic papillæ occupying the convexity of the curve. The irritability resides in the papillæ. The change produced by irritation consists—1st, in the disappearance of the curve, the style being brought into the straight position; 2nd, in its being curved in the opposite direction to a greater or less extent. In the moving part of the organ, or that corresponding to the stigmatic surface, the arrangement of the parts is the same as in *Mimulus*. An elastic epidermis covers the surface opposite to that occupied by the stigmatic papillæ. The vessels and cylindrenchymatous tissue are interposed, the former being in apposition to the epidermis, the latter occupying the remainder of the space. Spiral vessels contribute to the elasticity of the stigma.

The cylindrenchyma appears to be the tissue in which the changes are produced, giving rise to the irritability. The true stigma of *Goldfussia*, like that of *Mimulus*, consists of a surface presenting conical papillæ, in connexion with which are the cylindrical cells, which are continuous with those forming the general conducting tissue of the style. In *Mimulus* and in *Goldfussia anisophylla* each cylindrical cell terminates in a papilla. Hence Morren deduces an explanation which he considers tenable, and which he gives as the conclusion to be drawn from his researches. He supposes that the motion of the style depends on a sudden transference of the granules which are lodged in the papillæ to the opposite extremities of the cylindrical cells. This phænomenon he believes to be dependent on

a property of irritability resident in the granules themselves. Mr. Sanderson endeavoured to show that, in certain species at least of *Goldfussia*, it is impossible that any such motion of the granules can take place, as the necessary condition, viz. the continuity of the cylindrical cells with the papillæ, is absent. After giving a description of the different layers of cells of the style, and showing the complete separation of the papillæ of the stigma from the cylindrical cells of the style, the author concludes, that from these facts it is evident that no change of the position of the granules can, in the instances adduced, cause any alteration in the position of the stigma, and that there seems every reason for supposing that the change produced by irritation is confined to the external series of cells which in *Goldfussia*, as in *Mimulus*, have the property of resisting the tendency which the organ has, from the elasticity of the epidermis, to curve inwards on the application of a mechanical or chemical stimulus.

3. "On the mode of Growth in *Nostochineæ*," by John Ralfs, Esq.

4. "Remarks on some Mosses found near Penmanshiel," by John Hardy, Esq. The author stated that he had ascertained that 148 species of moss occurred within a short walk of Penmanshiel, being nearly as many as Dr. Dickie finds within ten miles of Aberdeen.

5. Dr. Balfour made some observations on the structure of Lyurp, a peculiar, hairy, scale-like matter found on the leaves of *Eucalyptus dumosa*. This substance is considered by Newport to be caused by the attack of an insect. The nature of it is still involved in much uncertainty. It has been analysed by Dr. Anderson, and is found to contain a large amount of sugar. The hairs which surround the cup-like bodies are marked with striæ, which converge in a peculiar manner towards a space running along the tube. The tubes contain granular and amylaceous matter, which becomes blue by the addition of iodine, but the hairy matter surrounding the cochineal insect does not do so. The subject is under investigation by Dr. Anderson; and Mr. Cay, who transmitted the substance from Australia, is expected soon to send specimens of the plant with the substance attached, so as to enable botanists to determine its nature more decidedly.

6. Dr. Balfour stated that he had observed the following plants in flower at the Bridge of Allan, near Stirling, during the first week of April:—

Draba verna; *Sisymbrium thalianum*; *Capsella Bursa-pastoris*; *Cardamine hirsuta*; *Ranunculus Ficaria*; *Caltha palustris*; *Cerastium triviale*; *Viola odorata*, in great profusion in the woods behind the village; *Potentilla Fragariastrum*; *Ulex europæus*; *Sarothamnus Scoparius*; *Ribes Grossularia*; *Oxalis Acetosella*, Keir; *Taraxacum officinale*, and cut-leaved variety; *Tussilago Farfara*, going out of flower; *Senecio vulgaris*; *Bellis perennis*; *Lamium maculatum*, woods at Keir; *Lamium purpureum*; *Nepeta Glechoma*; *Primula vulgaris*; *Primula veris*; *Veronica hederifolia*; *Ulmus montana*; *Narcissus Pseudo-narcissus*, woods at Keir, probably introduced; *Galanthus nivalis*, almost completely out of flower; *Luzula pilosa*, Keir; *Poa annua*; *Prunus*

spinosa; *Anemone nemorosa*, Keir woods; *Montia fontana*; *Geranium molle*; *Equisetum arvense*, in fructification; *Viola canina*; *Mercurialis perennis*; *Corylus avellana*; *Luzula campestris*; *Luzula sylvatica*, flowers beginning to expand; *Chrysosplenium oppositifolium*; *Cerasus avium*, Kippenross; *Cheiranthus Cheiri*, Dunblane Cathedral; *Salix caprea*; *Salix cinerea*.

Besides these, he noticed the occurrence of *Valeriana pyrenaica*, *Sedum Telephium*, and *Convallaria majalis* in the same district, but not in flower.

7. Dr. Balfour exhibited a flowering specimen of *Quassia amara*, from the Botanic Garden, and gave a description of the various parts of the flower. He also showed a specimen of *Cinnamomum nitidum*, which was in flower in the Botanic Garden, and made remarks on the distinctions betwixt it and *C. eucalyptoides*, with which it has been confounded. The plant figured as *C. nitidum* in Hooker's 'Exotic Flora' and in Hayne's Plates is *C. eucalyptoides*. A description of these plants will appear in the 'Edinburgh New Philosophical Journal.'

8. Dr. Balfour exhibited a fine specimen of dry rot (*Merulius lachrymans*) on a plank several feet in length, taken from a cellar at Holyrood Palace.

9. Mr. Stark exhibited specimens of the following woods, and made some short remarks upon them, viz. :—

Kydia calycina, used in clarifying sugar; *Myrica cerifera*, Candleberry Myrtle; *Ficus indica*, Banyan tree; *Achras bullata*, remarkable for its rapid growth and the density of its wood; *Paulownia imperialis*, *Nerium Oleander*, *Rhododendron arboreum*, *Araucaria braziliensis*, *Citrus vulgaris*.

MISCELLANEOUS.

Observations on the Geology and Natural History of Mexico.

By W. H. PEASE.

HAVING noticed among the published correspondence from the army in Mexico but little information respecting the natural features of that country, I take the liberty of presenting to the Academy the result of a few hasty observations made on a part of the route from Vera Cruz to the city of Mexico. But few opportunities for scientific investigations were afforded to those connected with the army, on account of the active operations they were incessantly engaged in, from the time of leaving the coast until the return of the army. I was enabled however, principally in company with scouting parties, to visit that part of the country between the range of volcanos, bounding the plains of Perote and Puebla on the east, and the Gulf of Mexico, comprising the greater part of the State of Vera Cruz, and to make some collections in natural history.

The general outlines of the country I presume it is unnecessary for me to detail. The plains of Cuetlachlan, or the *tierra caliente*, as they are more usually called, comprise that region of country bor-